

Infrastructure endowments and finance also influence sprawl.

High-density metropolitan areas depend on sewers, not septic systems, and regions with a full complement of public infrastructure sprawl less.

Higher-density metropolitan areas tend to have higher shares of houses on sewers than those that are low-density. This relationship is probably mutually supportive; high-density metros require sewers, but sewers both enable higher density and promote it by raising land values where sewer is available. Ocala, Florida, is among the lowest-density metropolitan areas in the United States. Its infrastructure may help explain its low density in both 1982 and 1997—only 36 percent of its houses were connected to public sewers. Although Ocala's density grew by about 8 percent between 1982 and 1997, that growth was not enough to move Ocala from last place in the density rankings nation-wide. And Glens Falls, New York, which started out with moderate density, lost substantial density thanks to its last-in-the-nation percent of households served by public sewers.

However, while public sewers associate with increasing density (or at least a slower rate of density decline), public water associated with faster density decline when we held constant other variables including the percent of houses on public sewers. The positive effect of sewers outweighs the negative one of public water, however. Metro areas with public sewers often tend also to have public water. The reverse is not true: it is much more common for more houses to have public water than to have sewers, because many local governments will provide public water without building sewers to avoid or correct groundwater pollution. These findings do not suggest that regions wishing to increase their density should promote public sewer but shun public water; they do, however, indicate that it may be counterproductive to provide public

water without providing public sewer. Providing public water without providing sewers will likely promote lower-density development than not providing public water at all, perhaps because when public water is not provided to non-sewered areas, development tends to be attracted to areas that already have sewers.

Metropolitan areas whose school districts relied heavily on local revenue sources have lower densities.

One fiscal factor associated significantly with density in 1997: metropolitan areas in which local school districts derived most of their revenues from local sources tended to be lower in density than those where state and federal sources provided more revenues. Since so much local educational funding derives from the property tax, this finding reflects the role that the property tax plays in subsidizing public services from a broad base. It may also be an indirect indicator of the results of central city-suburban disparities in educational funding and tax rates. In states where local governments must provide most of the funding for education, central city school districts must often impose high tax rates because their school-children have greater needs and because their residential assessed values tend to be lower than suburban values. Mobile residents often respond by moving to lower-tax suburbs. In future research we intend to develop a measure of central city-suburb tax disparity and explore its relationship with sprawl more directly.

Metropolitan areas whose local governments spent more of their budgets on highways urbanized less land.

Contrary to our expectations, we found that metropolitan areas in which highways constituted a higher share of local governments' budgets tended to urbanize less land than those where highways were a small share of the local budget. Local spend-

ing on highways was not a significant factor in either the density or the sprawl analysis; we plan additional research that will show how the total amount spent on highways per capita by all levels of government—federal, state, and local—affects sprawl. This will enable us to determine whether different levels of government spending have different sprawl effects.

Government organization, planning policies differ among sprawling and dense metropolitan areas.

Politically "fragmented" metropolitan areas sprawled more.

Metropolitan areas with myriad small local governments sprawl more than those with larger units of local government (city, township, and county). Many observers have attempted to link sprawl with municipal fragmentation. According to this logic, when metropolitan areas with the same population have very different numbers of local governments, the one with more local governments will have more sprawl. In such a situation, local governments compete more with one another to gain desirable land uses (retail and other non-polluting business uses that yield high property or sales taxes while demanding few services) and to avoid less desirable ones (high-density and affordable housing, which yields lower property taxes and demands more services, especially education).

Metropolitan areas in states with growth management sprawled more.

Ironically, our findings suggest that density dropped more rapidly in metropolitan areas in states with legislation requiring local governments to submit comprehensive growth plans to a state agency for review. It seems unlikely that growth management reduced density; rather, we suspect that states-adopted growth management precisely because they were both growing rapidly and experiencing rapid density declines.

California, Nevada, and Arizona—

all states dominated by metropolitan areas that gained density between 1982 and 1997—do not have such growth management laws. Among states with growth management, only Florida had several metropolitan areas with rising or steady density. There are, however, at least two plausible scenarios in which growth management might promote lower density, both of them having to do with problems in carrying out well-designed growth management systems. In some areas, local governments must prepare plans that meet state or regional goals, but higher-level governments lack the clout to ensure that local plans meet the spirit and letter of the law and that municipalities implement their plans. The second scenario is the Florida case. The state requires that infrastructure be in place before growth is permitted, but it failed to fund new infrastructure in the late 1980s and 1990s. Hence new growth has bled into rural areas that had slack infrastructure capacity, largely because growth was foreclosed in suburban areas that had some land left for higher density development but not enough road capacity.

Geographic constraints and agricultural productivity slow sprawl.

Metropolitan areas that are geographically constrained tend to have higher densities.

Metros that are surrounded by either coastlines, an international border, or other metropolitan areas tend to be denser than those adjacent to at least one rural non-metropolitan county. Metropolitan areas in which more land is in areas with over 15 percent slope are also denser, as are those with more wetlands. Land ownership also makes a difference; metropolitan areas with higher shares of private land have lower densities than those where federal, state, or local governments control more land.

Metropolitan areas rich in prime farmland have higher densities than others, and sprawled less.

Agricultural productivity also influences density; metro areas with higher shares of prime farmland tend to be more densely developed than those with lower quality farmland, rangeland, or forest land. We suspect that the good soil quality encourages farmers to pay more for the land and to embrace measures that keep land in farming. It is true that prime farmland in metropolitan areas dropped from 76.4 million to 71.0 million acres, a 7.0 percent decline, but even so, metropolitan areas with more prime farmland lost less density than those with little prime land. Madison and Minneapolis-St. Paul are illustrative of this effect. These metropolitan areas are similar in many respects. They both grew about 25 percent in population between 1982 and 1997 and have similar low levels of foreign-born residents, blacks, and Hispanics. But Minneapolis's density fell 22 percent between 1982 and 1997, whereas Madison's only dropped 6 percent. Part of the reason for this, we suspect, is because 41 percent of the land in metropolitan Madison was prime farmland in 1982, compared with only 32 percent in Minneapolis-St. Paul.

IV. Case Studies

A. Los Angeles and New York

The Los Angeles and New York CMSAs are the two most populous metropolitan areas in the nation, with approximately 15 million and 18 million residents respectively.³ Traditionally, New York has been viewed as more densely developed, while Los Angeles has been viewed as more low-density and auto-oriented. However, the reality is somewhat different. Although it is still extremely dense at its center, New York is sprawling dramatically on the edges. Meanwhile, although it is still auto-oriented, Los Angeles is "densifying"

dramatically and is developing quite densely even at the fringe. As a result, the overall statistical profile of the two metropolitan areas looks quite similar at a gross scale.

In 1982, New York had a population of 17.5 million people occupying approximately 1.85 million urbanized acres, for an overall metropolitan density of 9.44 persons per urbanized acre. Though smaller and less dense, Los Angeles's profile was not dramatically different even then. In 1982, L.A. had a population of 12.1 million people using 1.49 million acres, for an overall metropolitan density of 8.09 persons per acre.

Over the next 15 years, however, these two metropolitan areas grew in very different patterns. New York added 1.13 million persons and urbanized 478,000 acres of land, for a marginal metropolitan density of 2.37 persons per acre, or less than one-third of its overall average in 1982. L.A. urbanized a little less land (412,000 acres) but increased its population by more than 3.7 million people—a marginal density of 9.12 persons per acre for the entire five-county CMSA. It was one of only 17 metro areas in the nation to increase overall density during this period.

At the end of the 15 years, New York and L.A. looked more alike than ever. New York had 18.6 million people using 2.33 million acres of urbanized land, for an overall metropolitan density of 7.99 persons per urbanized acre. Los Angeles had 15.8 million people using 1.90 million acres of urbanized land, for an overall metropolitan density of 8.31 persons per urbanized acre.

This comparison is useful in understanding how land is used and how population is accommodated. Like most Northeastern metropolitan areas, New York is expanding its urbanized area largely because of low-density suburban sprawl at the metropolitan fringe, though it is also adding population in existing urban areas via

immigration. Los Angeles, by contrast, is not growing "up"—in the sense of building New York-style high-rises—but it is becoming denser, for two reasons. First, suburban tract homes on the metropolitan fringe are built much more densely; although there are many six- and seven-unit-per-acre subdivisions, there are very few five-acre lots. Second, immigrant and non-Anglo populations, many of which have modest incomes, are increasing household sizes and doubling up in existing areas, thereby increasing the population density even though the physical fabric does not change much.

B. Atlanta and Phoenix

In many ways, Atlanta and Phoenix are "bookend" metropolitan areas—often mentioned in the same breath when discussing Sunbelt growth. Both are booming economically and both are experiencing population growth. Both are "young"—Phoenix quite literally (the metro area was less than 100,000 persons in 1950) and Atlanta more figuratively (as the prototypical "New South" metropolis that only began booming in the 1960s). Yet their growth patterns could not be more different.

In 1982, Atlanta had a metropolitan population of approximately 2.2 million persons using 701,000 acres of urbanized land—an overall metropolitan density of 3.20 persons per urbanized acre. Even at that time, Phoenix was a dramatically different place. Metro Phoenix had a population of 1.6 million people (72 percent of Atlanta's population) using only 272,000 acres of urbanized land (39 percent of Atlanta's urbanized land area), for an overall metropolitan density of 5.91 persons per urbanized acre.

Over the next 15 years, this pattern only became more pronounced. Atlanta and Phoenix added very close to the same population—1.36 million additional people in Atlanta, 1.18 million additional people in Phoenix.

However, Atlanta urbanized five times as much land to accommodate this additional population as Phoenix did. To put it another way, Atlanta increased its urbanized land by 81 percent to accommodate a population growth of 61 percent. Phoenix increased its urbanized land by only 42 percent to accommodate a population increase of 73 percent.

In 1997, therefore, the two metropolitan areas that often seem so similar were more different than ever. Atlanta had a metropolitan population of 3.6 million people and 1.27 million acres of urbanized land—a metropolitan density of 2.84 persons per urbanized acre. Phoenix, by contrast, had a metropolitan population of 2.79 million people (77 percent of Atlanta's population) and 387,000 urbanized acres (30 percent of Atlanta's urbanized area)—a metropolitan density of 7.20 persons per urbanized acre.

Phoenix's growth pattern bears a strong resemblance to Los Angeles's, with the exception that Phoenix has not been as heavily affected as Los Angeles by immigration and demographic change. It is worth noting, however, that this dramatic contrast between Phoenix and Atlanta has emerged even though Atlanta has consumed land far more efficiently than most smaller metropolitan areas in the South. It is also worth noting that a similar comparison could be made between Las Vegas and Charlotte, which have similar growth characteristics and almost exactly the same set of differences.

C. Sacramento and Columbus

Sacramento, California, and Columbus, Ohio, provide an interesting case study that also reveals the dramatic difference in metropolitan growth patterns between the West and the Midwest.

Sacramento and Columbus are similar in many ways. Both are state capitals of large urban states, yet they lie in the center of major agricultural

belts. Both are also home to major universities (Ohio State and UC Davis). Both are growing in population and booming economically, thanks in large part to the high-tech industry's desire to exploit a well-educated labor pool that has developed because of both the capital and the university. Furthermore, in 1982—the beginning of our study period—they had almost exactly the same metropolitan population: slightly over 1 million people.

Of course, Sacramento and Columbus are located in two regions of the country with vastly different metropolitan growth patterns. But in relation to their surrounding regions, both metropolitan areas have atypical growth patterns that ought to make them more similar to one another. Sacramento is sprawling in comparison to most other California metro areas, while Columbus is growing compactly compared to most other metro areas in the Midwest.

Yet Sacramento and Columbus have very different metropolitan growth patterns—and those differences only became more striking between 1982 and 1997.

In 1982, Sacramento was already much more densely developed than Columbus. At that time, Sacramento had a population of 1.17 million persons using 205,000 acres of urbanized land—an average of 5.69 persons per urbanized acre. Columbus in 1982 had a very similar population—1.26 million people. But that population used 316,000 acres of urbanized land. Columbus's metropolitan density in 1982 was 3.99 persons per urbanized acre. In other words, Sacramento in 1982 was about 50 percent more densely developed than Columbus.

Over the next 15 years, the discrepancy grew noticeably—even though Sacramento dropped in overall population density and sprawled far more than most other California metro areas, including the neighboring farming areas of Stockton and Modesto.

Between 1982 and 1997, Columbus and Sacramento urbanized almost

exactly the same amount of previously non-urban land—about 114,000 acres for Columbus and about 102,000 acres for Sacramento. But Sacramento accommodated more than double the population growth, adding 533,000 new residents to only 258,000 for Columbus. In other words, Sacramento grew at a “marginal” population density of 5.23 persons per acre (almost the same as its historical density), while Columbus grew at a marginal density of 2.27 persons per acre, or less than 60 percent of its historical density.

At the end of the 15-year study period, Sacramento was accommodating a slightly greater metropolitan population than Columbus on only about 70 percent of the land. In 1997, Columbus had a population of about 1.52 million people using about 430,000 acres of urbanized land, for an overall density of 3.53 persons per urbanized acre (a figure just slightly lower than the national average). But Sacramento had a population of about 1.70 persons using about 307,000 acres of urbanized land, for an overall density of 5.53 persons per urbanized acre.

V. Conclusion

In closing, it is important to reiterate that overall land consumption is just one way to measure “sprawl.” Many other definitions exist, including automobile orientation and issues associated with connectedness and contiguity of urban areas. Nevertheless, the efficient utilization of land resources is also a commonly accepted definition (or at least a component) of sprawl. It is especially significant to note that the goal of efficient land utilization is being achieved in one region of the country that is commonly perceived to be sprawling—the West—but not in those parts of the nation that are commonly perceived not to have a sprawl problem—the Northeast and the Midwest.

This strongly suggests that different parts of the country should approach sprawl as a policy issue in different ways. The West may be more responsive to urban design solutions that seek to cluster density and mix commercial with residential development to create more efficient activity patterns as well as more efficient use of land. The rest of the country, especially the South, may be better off focusing on containment strategies and other efforts to stem the apparent trend of extremely low-density development on the metropolitan fringe. The Northeast and Midwest may also reduce their trend toward sprawl without population growth by redeveloping disused and sometimes contaminated industrial sites and rebuilding established neighborhoods that have declined.

Demography and growth rates together have a large influence on metropolitan density, and are somewhat susceptible to policy actions. Fast-growth regions with high proportions of foreign-born residents grew more densely in the 1980s and 1990s than moderately or slowly growing regions with low proportions of foreign-born residents. “White flight” also seems to be a factor in density change; regions with high proportions of black or Hispanic residents lost density faster than those with lower proportions of these minority groups.

Although growth rates and minority composition are difficult to influence with local or regional policy, some declining cities have begun to study the possibility of attracting foreign-born immigrants to their thinning neighborhoods. It is difficult to determine from our results whether such efforts will result in higher overall density; our findings may be an indication that immigrants are attracted to high-density regions, rather than that foreign-born residents cause density to increase. But there is a plausible scenario in which immigration does spur increased density. In the first round,

foreign-born residents move into and begin to invest in formerly disused neighborhoods. As the enclave expands and consolidates, property values within the neighborhoods in high demand begin to stabilize and rise. Next, outsiders identify new markets in the central city for additional investment. As a consequence of all these changes, the impression that central cities are not good places to do business or live begins to fade.

Regional density also relates to infrastructure. Metropolitan areas in which many residents have public water but no public sewers could probably increase the density in already-developed areas by shifting toward public sewers. Unfortunately for these regions, the era of huge federal subsidies to sewage plant construction ended over 20 years ago. Without such subsidies from the federal or state government, it is unlikely that municipal governments that already feel little compunction to accommodate higher density development will tax their residents to build sewers. On the other hand, researchers have been making huge progress in developing new septic-system technologies that require much smaller lots. States have been slow to accept these technologies.

A final area that may respond to policy change is regional fragmentation. Dissolution of municipal boundaries seems politically unlikely. But stronger efforts to promote regional cooperation would probably help reduce some of the pressure that seems most likely to promote low-density development in fragmented regions. Fair-share housing programs could assure that more local governments accommodate high-density and affordable housing; tax-base sharing could be designed to reduce the incentives for municipalities to compete over new commercial and industrial development.

Endnotes

- 1 William Fulton is President of the Solimar Research Group. Rolf Pendall is an Assistant Professor in the Department of City & Regional Planning at Cornell University and a Senior Research Associate at the Solimar Research Group. Mai Nguyen is a Ph.D. student in the Department of Urban Planning at the University of California, Irvine, and a Research Associate at the Solimar Research Group. Alicia Harrison is a Research Associate at the Solimar Research Group.
- 2 Honolulu, of course, is atypically land-constrained for U.S. metropolitan areas because it is located on an island in the Pacific Ocean. The other major non-continental metropolitan area, Anchorage, Alaska, is not included in this study because NRI does not compile data about Alaska.
- 3 The extremely large drops in density in Pueblo and Las Cruces suggest a sampling error might be at work. Nevertheless, even if such a sampling error were factored in, it is almost certainly true that the metro density in these metro areas dropped considerably.
- 4 By "associated significantly," we mean at levels of statistical significance above 90 percent confidence level.
- 5 This discussion is based on the Consolidated Metropolitan Statistical Area—five counties for Los Angeles and 31 counties (in three states) for New York. The profile of the Primary Metropolitan Statistical Area looks quite different.
- 6 For a detailed description of sampling technique, see Fuller, Wayne A. (1999). *Estimation Procedures for the United States National Resources Inventory*. 1999 Proceeding of Survey Methods Section of the Statistical Society of Canada.

Appendix A: Methodology

The data used in this study were obtained from a variety of sources. The main variable of concern, density, was derived using data from the United States National Resources Inventory (NRI) for 1982, 1987, 1992, and 1997 along with population data from the U.S. Census Bureau. The NRI is a national longitudinal panel survey of land use that allows for analyses of changing trends over a 15-year period. The sample is a stratified two-stage sample of non-federal land in the U.S. and Puerto Rico.⁶ This study only examines states in the U.S. and omits Alaska because the NRI has not yet reported on Alaska. As a sample, the NRI is subject to all the typical errors of sampling. The amount of urbanized land we report here is an estimate. The estimates are probably more accurate in counties with more land area, in metropolitan areas with multiple counties, and in metropolitan areas with more urban land use. We have not computed standard errors or confidence intervals around these estimates because the USDA has not yet released software that would make their computation feasible. Future releases of this report will, however, include standard errors and confidence intervals around the estimates.

In this study, density is measured as population divided by urban area. The NRI defines urban areas as follows:

Urban and built-up areas. A Land cover/use category consisting of residential, industrial, commercial, and institutional land; construction sites; public administrative sites; railroad yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment plants; water control structures and spillways; other land used for such purposes; small parks (less than ten acres) within urban and built-up areas; and

highways, railroads, and other transportation facilities if they are surrounded by urban areas. Also included are tracts of less than ten acres that do not meet the above definition but are completely surrounded by urban and built-up land. Two size categories are recognized in the NRI: areas of 0.25 acre to ten acres, and areas of at least ten acres.

For additional information on the NRI, please refer to the NRI web site, <http://www.nhq.nrcs.usda.gov/NRI/1997/>.

The U.S. Census, by contrast, defines urban areas on the basis of a minimum population density:

The Census Bureau delineates urbanized areas (UA's) to provide a better separation of urban and rural territory, population, and housing in the vicinity of large places. A UA comprises one or more places ("central place") and the adjacent densely settled surrounding territory ("urban fringe") that together have a minimum of 50,000 persons. The urban fringe generally consists of contiguous territory having a density of at least 1,000 persons per square mile. The urban fringe also includes outlying territory of such density if it was connected to the core of the contiguous area by road and is within 1 1/2 road miles of that core, or within five road miles of the core but separated by water or other undevelopable territory. Other territory with a population density of fewer than 1,000 people per square mile is included in the urban fringe if it eliminates an enclave or closes an indentation in the boundary of the urbanized area. The population density is determined by (1) outside of a place, one or more contiguous census blocks with a

population density of at least 1,000 persons per square mile or (2) inclusion of a place containing census blocks that have at least 50 percent of the population of the place and a density of at least 1,000 persons per square mile (<http://www.census.gov/population/censusdata/urdef.txt>).

Because the Census definition of urban areas includes a density threshold, the Census excludes some areas that would be identified as urban by the NRI. The NRI would also exclude certain areas—especially large parks within urban areas—that the Census incorporates within urban areas. On net, however, the NRI finds more urban acreage than the Census.

We used two different sources to estimate population. The U.S. Census produces annual intercensal estimates of population; we used these estimates for the population of counties in 1982 and 1992 (<http://www.census.gov/population/estimates/county/e8089co.zip>). The 1992 and 1997 estimates appear to understate the population of many counties. The 2000 census results suggested that the Bureau's estimates of undocumented immigration were too low, and that the estimated 1990 census undercount may have been underestimated. The Bureau does not expect to release revised intercensal estimates for the 1990s until at least 2002. We therefore produced our own population estimates for 1992 and 1997 by doing a straight-line interpolation between 1990 and 2000. This interpolation would have introduced additional error into our density estimates if a county's growth rate in the first half of the decade was dramatically different from that in the second half of the decade.

We calculated density values for every Consolidated Metropolitan Statistical Area (CMSA) or Metropolitan Statistical Area (MSA) in the U.S., according to 1990 census boundary definitions, for the years 1982, 1987,

1992 and 1997. To explain differences among metropolitan areas' density, density change, and urbanized land change, we estimated ordinary least squares multiple regression analyses using the backwards stepwise method. Each regression analysis was conducted in a similar manner, starting with all variables we thought might be relevant regressed on each dependent variable. Then, we removed insignificant variables one at a time, re-running the analysis, until only statistically significant variables remained in the model. In the end, there were 11 significant variables in the density 1997 model, 12 in density change 1982–1997, and nine in urbanization, change 1982–1997.

In these regressions, we used Primary Metropolitan Statistical Area (PMSA) or Metropolitan Statistical Area (MSA) boundaries. PMSAs are constituents of CMSAs. For instance, the New York-Northern New Jersey-Long Island CMSA includes the Bergen-Passaic, Jersey City, Middlesex-Somerset-Hunterdon, Monmouth-Ocean, Nassau-Suffolk, New York, Newark, and Orange County PMSAs. Each of these PMSAs is undergoing density change that responds not only to conditions throughout the New York CMSA but also—and perhaps more importantly—those in their smaller sub-region. The rest of the report (e.g. the Case Studies) is based on data at the CMSA level.

Appendix B. Change in Population, Urbanized Land and Density in 281 U.S. Metropolitan Areas, 1982–1997

U.S. Census Designated Region		Density 1997	Change in Population 1982–1997	Change in Urbanized Land 1982–1997	Change in Density 1982–1997
Midwest		3.39	7.06%	32.23%	-19.03%
Northeast		4.51	6.91%	39.10%	-23.14%
South		2.82	22.23%	59.61%	-23.42%
West		4.85	32.21%	48.94%	-11.23%
United States		3.55	17.02%	47.14%	-20.47%
Metropolitan Statistical Area	Region*	Density 1997	Change in Population 1982–1997	Change in Urbanized Land 1982–1997	Change in Density 1982–1997
Anderson, IN	MW	3.25	-1.6%	13.0%	-13.0%
Appleton-Oshkosh-Neenah, WI	MW	3.18	18.0%	35.6%	-13.0%
Battle Creek, MI	MW	2.74	-1.8%	17.3%	-16.3%
Benton Harbor, MI	MW	2.74	-2.8%	27.9%	-24.0%
Bismarck, ND	MW	2.30	11.4%	36.0%	-18.0%
Bloomington, IN	MW	2.86	15.1%	33.2%	-13.6%
Bloomington-Normal, IL	MW	4.15	19.7%	64.5%	-27.2%
Canton, OH	MW	3.41	0.4%	25.7%	-20.2%
Cedar Rapids, IA	MW	3.68	10.6%	22.1%	-9.4%
Champaign-Urbana-Rantoul, IL	MW	5.32	3.5%	34.1%	-22.8%
Chicago-Gary-Lake County, IL-IN-WI	MW	6.02	9.6%	25.5%	-12.7%
Cincinnati-Hamilton, OH-KY-IN	MW	3.77	10.4%	40.1%	-21.2%
Cleveland-Akron-Lorain, OH	MW	4.03	0.4%	31.7%	-23.8%
Columbia, MO	MW	2.82	24.8%	47.2%	-15.3%
Columbus, OH	MW	3.53	20.5%	36.0%	-11.4%
Davenport-Rock Island-Moline, IA-IL	MW	3.01	-6.8%	10.5%	-15.7%
Dayton-Springfield, OH	MW	3.64	1.8%	17.9%	-13.6%
Decatur, IL	MW	2.95	-10.1%	25.3%	-28.3%
Des Moines, IA	MW	4.26	18.6%	35.3%	-12.3%
Detroit-Ann Arbor, MI	MW	4.27	5.0%	29.0%	-18.7%
Dubuque, IA	MW	3.09	-4.0%	11.3%	-13.7%
Duluth, MN-WI	MW	2.32	-7.5%	30.7%	-29.2%
Eau Claire, WI	MW	2.51	8.5%	29.9%	-16.5%
Elkhart-Goshen, IN	MW	2.99	26.5%	36.4%	-7.2%
Evansville-Henderson, IN-KY	MW	3.35	4.8%	22.1%	-14.2%
Fargo-Moorhead, ND-MN	MW	4.06	19.8%	15.3%	3.9%
Flint, MI	MW	2.97	-0.6%	21.4%	-18.1%
Fort Wayne, IN	MW	3.63	12.3%	39.5%	-19.5%
Grand Forks, ND	MW	3.21	-0.1%	8.8%	-8.2%
Grand Rapids, MI	MW	3.32	26.9%	45.2%	-12.6%
Green Bay, WI	MW	3.08	21.7%	33.8%	-9.0%
Indianapolis, IN	MW	3.58	19.7%	41.8%	-15.5%
Iowa City, IA	MW	3.73	25.9%	45.9%	-13.7%
Jackson, MI	MW	2.52	3.7%	23.3%	-15.9%
Janesville-Beloit, WI	MW	2.52	7.7%	28.0%	-15.9%
Joplin, MO	MW	2.92	16.5%	40.6%	-17.1%
Kalamazoo, MI	MW	3.52	9.7%	30.2%	-15.8%
Kankakee, IL	MW	3.75	0.3%	34.8%	-25.6%
Kansas City, MO-KS	MW	3.78	17.5%	36.8%	-14.1%
Kokomo, IN	MW	4.21	-1.3%	20.2%	-17.9%
La Crosse, WI	MW	3.95	12.7%	17.3%	-4.0%
Lafayette-West Lafayette, IN	MW	3.34	15.5%	38.4%	-16.5%
Lansing-East Lansing, MI	MW	3.40	6.8%	50.3%	-28.9%
Lawrence, KS	MW	3.39	35.1%	38.1%	-2.2%
Lima, OH	MW	2.81	1.4%	42.6%	-28.9%
Lincoln, NE	MW	3.36	21.2%	13.0%	7.2%
Little Rock-North Little Rock, AR	MW	2.73	17.0%	39.3%	-16.0%
Madison, WI	MW	4.89	24.2%	32.1%	-6.0%
Mansfield, OH	MW	2.58	-0.9%	24.6%	-20.4%
Milwaukee-Racine, WI	MW	3.93	6.5%	24.9%	-14.7%
Minneapolis-St. Paul, MN-WI	MW	3.85	25.1%	61.1%	-22.4%
Muncie, IN	MW	3.65	-5.4%	53.1%	-38.2%
Muskegon, MI	MW	2.92	8.9%	28.5%	-16.9%
Omaha, NE-IA	MW	4.11	13.2%	25.3%	-9.7%
Peoria, IL	MW	2.86	-4.7%	24.3%	-23.4%
Rapid City, SD	MW	1.76	19.6%	58.7%	-24.7%
Rochester, MN	MW	2.91	26.2%	35.4%	-6.8%
Rockford, IL	MW	3.52	10.9%	31.0%	-15.4%
Saginaw-Bay City-Midland, MI	MW	3.54	-3.0%	31.8%	-26.4%
Sheboygan, WI	MW	2.89	9.2%	33.2%	-18.0%
Sioux City, IA-NE	MW	3.26	3.3%	14.8%	-10.0%
Sioux Falls, SD	MW	2.55	26.5%	35.3%	-6.5%
South Bend-Mishawaka, IN	MW	4.16	8.9%	35.9%	-19.8%

Metropolitan Statistical Area	Region*	Density 1997	Change in Population 1992-1997	Change in Urbanized Land 1992-1997	Change in Density 1992-1997
Springfield, IL	MW	4.16	5.9%	27.3%	-16.8%
Springfield, MO	MW	2.92	32.4%	37.2%	-3.5%
St. Cloud, MN	MW	3.00	30.7%	73.7%	-24.8%
St. Joseph, MO	MW	2.77	-1.3%	18.5%	-16.8%
St. Louis, MO-IL	MW	3.89	6.0%	25.1%	-15.3%
Steubenville-Weirton, OH-WV	MW	3.01	-15.8%	34.4%	-37.4%
Terre Haute, IN	MW	3.57	-3.0%	16.4%	-16.6%
Toledo, OH	MW	3.74	0.3%	30.0%	-22.8%
Topeka, KS	MW	3.17	7.1%	38.6%	-22.8%
Waterloo-Cedar Falls, IA	MW	3.33	-7.2%	13.1%	-17.9%
Wausau, WI	MW	3.15	10.5%	26.2%	-12.4%
Wichita, KS	MW	3.02	15.7%	37.4%	-15.8%
Youngstown-Warren, OH	MW	3.20	-7.0%	25.1%	-25.7%
Albany-Schenectady-Troy, NY	NE	3.51	5.8%	34.7%	-21.4%
Allentown-Bethlehem, PA-NJ	NE	3.06	13.0%	61.2%	-29.9%
Altoona, PA	NE	3.72	-4.5%	42.0%	-32.7%
Atlantic City, NJ	NE	3.32	22.2%	66.6%	-26.6%
Bangor, ME	NE	3.57	5.4%	46.9%	-28.3%
Binghamton, NY	NE	3.68	-3.0%	33.3%	-27.3%
Boston-Lawrence-Salem-Lowell-Brockton, MA	NE	5.65	6.7%	46.9%	-27.4%
Buffalo-Niagara Falls, NY	NE	5.74	-3.9%	13.0%	-15.0%
Burlington, VT	NE	3.66	20.6%	50.4%	-19.8%
Elmira, NY	NE	4.16	-3.9%	32.9%	-27.7%
Erie, PA	NE	2.87	-0.7%	49.9%	-33.8%
Glens Falls, NY	NE	2.47	11.7%	37.7%	-18.9%
Harrisburg-Lebanon-Carlisle, PA	NE	3.18	9.9%	62.4%	-32.4%
Hartford-New Britain-Middletown-Bristol, CT	NE	4.16	7.6%	20.4%	-10.6%
Jamestown-Dunkirk, NY	NE	4.14	-4.1%	13.0%	-15.1%
Johnstown, PA	NE	2.44	-9.4%	53.0%	-40.8%
Lancaster, PA	NE	3.10	23.0%	45.9%	-15.7%
Lewiston-Auburn, ME	NE	2.30	5.4%	43.2%	-26.4%
Manchester-Nashua, NH	NE	3.13	27.9%	69.5%	-24.6%
New Bedford-Fall River-Attleboro, MA	NE	4.02	10.3%	45.1%	-24.0%
New Haven-Waterbury-Meriden, CT	NE	5.09	7.0%	19.2%	-10.3%
New London-Norwich, CT	NE	4.10	6.1%	21.4%	-12.6%
New York-Northern New Jersey-Long Island, NY-NJ-CT	NE	7.99	6.1%	20.5%	-15.4%
Philadelphia-Wilmington-Trenton, PA-NJ-DE-MD	NE	5.03	7.0%	35.6%	-21.1%
Pittsburgh-Beaver Valley, PA	NE	3.72	-8.0%	42.6%	-35.5%
Pittsfield, MA	NE	3.43	-4.1%	31.9%	-27.3%
Portland, ME	NE	2.68	17.4%	108.4%	-43.7%
Portsmouth-Dover-Rochester, NH	NE	2.85	31.6%	76.5%	-25.4%
Poughkeepsie, NY	NE	3.04	11.1%	10.0%	1.0%
Providence-Pawtucket-Woonsocket, RI	NE	5.93	9.0%	22.2%	-10.9%
Reading, PA	NE	3.48	15.2%	50.4%	-23.4%
Rochester, NY	NE	4.41	4.5%	21.7%	-14.1%
Scranton-Wilkes-Barre, PA	NE	2.43	4.1%	55.0%	-32.8%
Sharon, PA	NE	2.33	-5.2%	52.5%	-37.9%
Springfield, MA	NE	3.84	4.5%	41.6%	-26.2%
State College, PA	NE	2.83	15.2%	55.1%	-25.7%
Syracuse, NY	NE	3.57	2.0%	43.0%	-28.7%
Utica-Rome, NY	NE	3.40	-4.7%	47.9%	-35.5%
Williamsport, PA	NE	3.58	2.0%	53.2%	-33.5%
Worcester-Fitchburg-Leominster, MA	NE	3.97	13.8%	53.0%	-25.6%
York, PA	NE	2.83	18.1%	77.7%	-33.5%
Abilene, TX	S	3.69	4.3%	37.6%	-24.2%
Albany, GA	S	2.17	2.7%	52.9%	-32.8%
Alexandria, LA	S	3.20	-5.7%	39.9%	-32.6%
Amarillo, TX	S	2.30	15.4%	33.1%	-13.3%
Anderson, SC	S	1.75	16.6%	44.1%	-19.1%
Anniston, AL	S	2.75	-7.1%	71.7%	-45.9%
Asheville, NC	S	2.81	20.3%	87.4%	-35.8%
Athens, GA	S	2.43	35.4%	101.6%	-32.8%
Atlanta, GA	S	2.84	60.8%	81.5%	-11.4%
Augusta, GA-SC	S	2.20	23.3%	55.6%	-20.8%
Austin, TX	S	3.12	80.3%	55.4%	16.0%
Baltimore, MD	S	4.81	12.7%	32.3%	-14.8%
Baton Rouge, LA	S	3.24	11.9%	36.6%	-18.1%
Beaumont-Port Arthur, TX	S	1.65	-2.1%	33.3%	-26.5%
Biloxi-Gulfport, MS	S	1.90	17.0%	20.3%	-2.8%
Birmingham, AL	S	2.82	9.9%	50.6%	-27.1%
Bradenton, FL	S	3.08	51.8%	56.3%	-2.9%
Brownsville-Harlingen, TX	S	4.48	35.5%	51.7%	-10.7%
Bryan-College Station, TX	S	2.84	27.5%	51.2%	-15.7%

Metropolitan Statistical Area	Region*	Density 1987	Change in Population 1982-1987	Change in Urbanized Land 1982-1987	Change in Density 1982-1987
Burlington, NC	S	2.49	22.8%	28.9%	-4.8%
Charleston, SC	S	3.32	18.3%	53.3%	-23.8%
Charleston, WV	S	3.05	-6.6%	58.9%	-41.2%
Charlotte-Gastonia-Rock Hill, NC-SC	S	2.41	38.8%	73.9%	-20.2%
Charlottesville, VA	S	2.19	29.4%	53.7%	-15.8%
Chattanooga, TN-GA	S	2.48	8.5%	52.7%	-29.0%
Clarksville-Hopkinsville, TN-KY	S	3.31	25.0%	71.6%	-27.1%
Columbia, SC	S	2.64	22.1%	79.9%	-32.1%
Columbus, GA-AL	S	3.48	2.5%	53.4%	-33.2%
Corpus Christi, TX	S	2.89	8.0%	41.1%	-23.4%
Cumberland, MD-WV	S	2.55	-5.0%	31.3%	-27.6%
Dallas-Fort Worth, TX	S	3.78	49.1%	54.4%	-3.5%
Danville, VA	S	2.28	-1.0%	41.5%	-30.0%
Daytona Beach, FL	S	2.84	49.5%	75.2%	-14.7%
Decatur, AL	S	1.77	16.9%	139.1%	-51.1%
Dothan, AL	S	3.09	8.2%	40.1%	-22.8%
El Paso, TX	S	5.27	27.6%	39.2%	-8.3%
Enid, OK	S	2.92	-15.0%	15.9%	-26.6%
Fayetteville, NC	S	4.15	17.1%	59.6%	-26.6%
Fayetteville-Springdale, AR	S	4.38	42.3%	63.4%	-12.9%
Florence, AL	S	2.26	3.2%	24.6%	-17.2%
Florence, SC	S	2.70	9.8%	58.9%	-30.9%
Fort Myers-Cape Coral, FL	S	2.03	77.2%	53.8%	15.2%
Fort Pierce, FL	S	2.17	72.2%	32.6%	29.9%
Fort Smith, AR-OK	S	2.88	21.0%	56.0%	-22.4%
Fort Walton Beach, FL	S	2.87	39.3%	106.6%	-32.5%
Gadsden, AL	S	2.42	-0.1%	39.6%	-28.5%
Gainesville, FL	S	2.54	28.7%	33.6%	-3.7%
Greensboro-Winston-Salem-High Point, NC	S	2.74	22.7%	54.2%	-20.4%
Greenville-Spartanburg, SC	S	2.36	21.7%	74.4%	-30.2%
Hagerstown, MD	S	3.30	14.7%	41.3%	-18.8%
Hickory-Morganton, NC	S	1.55	21.6%	33.8%	-9.1%
Houma-Thibodaux, LA	S	3.58	1.4%	41.3%	-28.2%
Houston-Calveston-Brazoria, TX	S	3.47	25.9%	37.6%	-8.5%
Huntington-Ashland, WV-KY-OH	S	3.28	-5.6%	37.8%	-31.5%
Huntsville, AL	S	3.24	30.9%	99.5%	-34.4%
Jackson, MS	S	3.14	15.4%	39.0%	-17.0%
Jackson, TN	S	3.40	15.3%	44.9%	-20.4%
Jacksonville, FL	S	3.16	38.5%	61.1%	-14.0%
Jacksonville, NC	S	3.26	26.3%	64.6%	-23.3%
Johnson City-Kingsport-Bristol, TN-VA	S	2.53	6.4%	58.8%	-33.0%
Killeen-Temple, TX	S	3.17	30.5%	68.3%	-22.5%
Knoxville, TN	S	2.40	17.1%	70.9%	-31.5%
Lafayette, LA	S	3.30	10.9%	64.5%	-32.6%
Lake Charles, LA	S	3.30	2.9%	41.4%	-27.3%
Lakeland-Winter Haven, FL	S	2.28	35.4%	92.6%	-29.7%
Laredo, TX	S	4.67	57.6%	78.6%	-11.7%
Lawton, OK	S	3.42	-4.6%	36.5%	-30.1%
Lexington-Fayette, KY	S	3.40	21.1%	68.2%	-28.0%
Longview-Marshall, TX	S	2.10	3.0%	74.8%	-41.0%
Louisville, KY-IN	S	3.43	5.6%	57.4%	-32.9%
Lubbock, TX	S	3.88	9.7%	29.5%	-15.3%
Lynchburg, VA	S	2.54	2.7%	34.3%	-23.5%
Macon-Warner Robins, GA	S	2.19	12.8%	119.6%	-48.6%
McAllen-Edinburg-Mission, TX	S	4.41	64.0%	97.0%	-16.7%
Melbourne-Titusville-Palm Bay, FL	S	3.26	51.5%	81.9%	-16.7%
Memphis, TN-AR-MS	S	3.50	17.1%	67.3%	-30.0%
Miami-Fort Lauderdale, FL	S	7.93	30.9%	36.2%	-3.9%
Midland, TX	S	1.67	14.7%	45.4%	-21.1%
Mobile, AL	S	2.69	14.0%	27.0%	-10.2%
Monroe, LA	S	2.57	3.0%	42.4%	-27.6%
Montgomery, AL	S	2.89	16.1%	32.2%	-12.2%
Naples, FL	S	2.65	131.8%	153.3%	-12.4%
Nashville, TN	S	2.72	33.4%	103.0%	-34.3%
New Orleans, LA	S	5.64	-1.4%	25.0%	-21.1%
Norfolk-Virginia Beach-Newport News, VA	S	4.22	23.2%	52.3%	-19.1%
Ocala, FL	S	1.23	74.5%	61.4%	8.1%
Odessa, TX	S	1.76	-11.1%	21.6%	-26.9%
Oklahoma City, OK	S	2.99	13.2%	48.5%	-23.8%
Orlando, FL	S	4.07	73.5%	92.2%	-9.7%
Owensboro, KY	S	5.07	3.9%	52.1%	-31.7%
Panama City, FL	S	2.02	36.5%	67.1%	-18.3%
Parkersburg-Marietta, WV-OH	S	2.75	-4.0%	40.6%	-31.8%
Pascagoula, MS	S	2.24	4.4%	30.1%	-19.8%
Pensacola, FL	S	2.58	28.9%	61.7%	-20.3%

Metropolitan Statistical Area	Region*	Density 1997	Change in Population 1982-1997	Change in Urbanized Land 1982-1997	Change in Density 1982-1997
Pine Bluff, AR	S	2.68	-5.5%	25.9%	-24.9%
Raleigh-Durham, NC	S	2.66	60.0%	93.8%	-17.4%
Richmond-Petersburg, VA	S	2.82	23.2%	70.0%	-27.6%
Roanoke, VA	S	3.84	4.9%	24.5%	-15.7%
San Angelo, TX	S	2.32	12.6%	25.6%	-10.3%
San Antonio, TX	S	4.53	30.6%	40.9%	-7.4%
Sarasota, FL	S	2.59	40.9%	36.2%	3.4%
Savannah, GA	S	2.66	14.4%	48.4%	-22.9%
Sherman-Denison, TX	S	1.91	15.3%	70.5%	-32.4%
Shreveport, LA	S	3.09	0.5%	24.9%	-19.6%
Tallahassee, FL	S	2.95	35.0%	92.8%	-30.0%
Tampa-St. Petersburg-Clearwater, FL	S	3.86	33.4%	50.5%	-11.4%
Texarkana, TX-Texarkana, AR	S	1.74	9.9%	12.8%	-2.6%
Tulsa, OK	S	2.79	10.9%	30.4%	-15.0%
Tuscaloosa, AL	S	2.74	16.8%	101.7%	-42.1%
Tyler, TX	S	1.99	22.1%	97.0%	-38.0%
Victoria, TX	S	1.74	9.4%	30.9%	-16.4%
Waco, TX	S	3.83	17.4%	22.0%	-3.8%
Washington, DC-MD-VA	S	5.88	29.7%	47.0%	-11.8%
West Palm Beach-Boca Raton-DeLray Beach, FL	S	3.47	62.7%	47.4%	10.4%
Wheeling, WV-OH	S	3.41	-15.0%	32.0%	-35.6%
Wichita Falls, TX	S	2.71	3.0%	26.3%	-18.5%
Wilmington, NC	S	2.61	38.0%	71.9%	-19.7%
Albuquerque, NM	W	3.13	23.2%	85.1%	-33.5%
Bakersfield, CA	W	3.84	44.4%	123.6%	-35.4%
Bellingham, WA	W	3.20	41.2%	45.8%	-3.2%
Billings, MT	W	2.01	10.2%	46.9%	-25.0%
Boise City, ID	W	3.32	50.9%	112.4%	-29.0%
Bremerton, WA	W	3.70	41.4%	73.1%	-18.3%
Casper, WY	W	3.12	-15.8%	13.0%	-25.5%
Cheyenne, WY	W	1.70	11.2%	32.1%	-15.8%
Chico, CA	W	5.28	29.6%	49.8%	-13.5%
Colorado Springs, CO	W	2.95	44.7%	72.0%	-15.9%
Denver-Boulder, CO	W	4.47	30.1%	42.9%	-9.0%
Eugene-Springfield, OR	W	3.40	14.2%	20.4%	-5.2%
Fort Collins-Loveland, CO	W	3.48	47.3%	39.6%	5.5%
Fresno, CA	W	4.95	40.3%	40.6%	-0.2%
Great Falls, MT	W	3.13	-0.3%	17.1%	-14.8%
Greeley, CO	W	5.33	32.2%	13.9%	16.1%
Honolulu, HI	W	12.36	11.4%	19.1%	-6.5%
Las Cruces, NM**	W	2.79	57.5%	784.9%	-82.2%
Las Vegas, NV	W	6.67	130.8%	53.1%	50.8%
Los Angeles-Anaheim-Riverside, CA	W	8.31	31.2%	27.6%	2.8%
Medford, OR	W	2.64	27.6%	25.1%	2.0%
Merced, CA	W	4.95	40.7%	72.0%	-18.2%
Modesto, CA	W	7.31	51.1%	53.0%	-1.3%
Olympia, WA	W	2.55	46.5%	79.9%	-18.6%
Phoenix, AZ	W	7.20	72.9%	41.8%	21.9%
Portland-Vancouver, OR-WA	W	5.10	32.0%	48.9%	-11.3%
Provo-Orem, UT	W	7.78	44.9%	80.4%	-19.7%
Pueblo, CO**	W	4.37	85.0%	763.9%	-87.4%
Redding, CA	W	1.82	30.3%	70.5%	-23.6%
Reno, NV	W	7.99	50.6%	50.6%	0.0%
Richland-Kennewick-Pasco, WA	W	1.90	17.1%	67.1%	-29.9%
Sacramento, CA	W	5.55	45.7%	49.9%	-2.8%
Salem, OR	W	3.93	28.1%	45.9%	-12.2%
Salinas-Seaside-Monterey, CA	W	7.08	26.7%	28.3%	-1.3%
Salt Lake City-Ogden, UT	W	5.00	29.9%	50.4%	-13.6%
San Diego, CA	W	7.50	37.9%	44.1%	-4.3%
San Francisco-Oakland-San Jose, CA	W	7.96	22.7%	27.6%	-3.9%
Santa Barbara-Santa Maria-Lompoc, CA	W	5.65	24.7%	47.0%	-15.2%
Santa Fe, NM	W	1.68	41.4%	80.7%	-21.7%
Seattle-Tacoma, WA	W	5.10	33.1%	50.9%	-11.8%
Spokane, WA	W	2.43	15.4%	22.1%	-5.5%
Stockton, CA	W	6.82	44.2%	40.3%	2.8%
Tucson, AZ	W	2.80	39.2%	46.0%	-4.7%
Visalia-Tulare-Porterville, CA	W	7.39	35.2%	35.3%	-0.1%
Yakima, WA	W	4.31	20.1%	60.1%	-24.9%
Yuba City, CA	W	3.41	26.1%	51.2%	-16.6%
Yuma, AZ	W	5.00	77.5%	130.4%	-23.0%

* In rare instances when metropolitan areas extended into another Census region, the primary center city is used for the regional grouping

** Denotes extreme outliers. Urbanized land reflects sampling error; see Appendix A for details

Appendix C: Explaining differences in density, density change, and urbanized land change

Dependent variable

Percent change in MSA urbanized land area, using
1990 PMSA boundaries

Sources

1997 National Resources Inventory

Independent variables

Demography and socioeconomic status

Population change (percent), 1982-97

Sources

1982 Census estimates, 1997 estimates by authors based on
1990 and 2000 census

Percent change in number of persons per household (estimate),
1982-97

Authors' estimates based on 1980 and 1990 persons
per household and 2000 census

Metropolitan area population, 1982 (base-10 logarithm)

1982 Census estimates

Per capita income, 1982

Bureau of Economic Analysis-REIS

Median income, 1989

1990 Census of Population and Housing, STF3

Income polarization (rich + poor / middle income households)

1990 Census of Population and Housing, STF3

Percent of households very low income 1989

1990 Census of Population and Housing, STF3

Percent of population under 18 years old 1990

1990 Census of Population and Housing, STF1

Percent of population 65 years and over 1990

1990 Census of Population and Housing, STF1

Percent of population foreign born 1990

1990 Census of Population and Housing, STF3

Race

Sources

Black-white segregation (D index), tracts, 1990

1990 Census of Population and Housing, STF1

Hispanic-white segregation (D index), tracts, 1990

1990 Census of Population and Housing, STF1

Percent black, 1990

1990 Census of Population and Housing, STF1

Percent Hispanic, 1990

1990 Census of Population and Housing, STF1

Political and planning variables

Sources

Number of persons per local general purpose government, 1997

Census of Governments

Number of persons per school district, 1997

Census of Governments

Comprehensive planning mandate

Authors' research

State review of comprehensive plans

Authors' research

Fiscal structure

Sources

Percent of local government revenues from property tax, 1982

Census of Governments

Percent of school district revenues from local sources, 1992

Census of Governments, F-33 collection

Infrastructure

Sources

Percent of local budgets spent on highways, 1982

Census of Governments

Percent of dwellings on sewers, 1990

1990 Census of Population and Housing, STF3

Percent of dwellings on public water, 1990

1990 Census of Population and Housing, STF3

Percent of land area in rural transportation uses, 1982

1997 National Resources Inventory

Economy

Sources

Percent of employment in manufacturing, 1982

US Census Bureau, County Business Patterns

Percent change in employment, 1982-92

US Census Bureau, County Business Patterns

Percent change in manufacturing employment minus percent
change in total employment, 1982-92

US Census Bureau, County Business Patterns

Landscape/physical variables

Sources

Coastal or border MSA

Surrounded by other MSAs and coasts/borders

Authors' research

Percent land 15+% slope

1997 National Resources Inventory

Percent covered by wetlands, 1982

1992 National Resources Inventory

Ownership variables

Sources

Percent land in private ownership 1982

1992 National Resources Inventory

Agriculture variables

Sources

Average farm size 1982

Census of Agriculture

Average value of farm products sold per acre 1982

Census of Agriculture

Percent of land prime farmland 1982

1997 National Resources Inventory

Average value of farm land and buildings per acre of farmland 1982

Census of Agriculture

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For More Information:

William Fulton, President
Solimar Research Group
phone: 805-643-7700
e-mail: bfulton@solimar.org

Rolf Pendall, Assistant Professor
Department of City & Regional Planning
Cornell University
and Senior Research Associate
Solimar Research Group
phone: 607-255-5561
e-mail: rjp17@cornell.edu

Brookings Center on Urban and Metropolitan Policy
phone: 202-797-6139
web: www.brookings.edu/urban



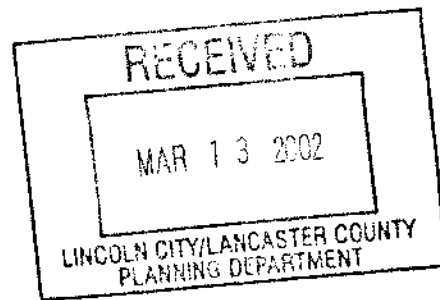
THE BROOKINGS INSTITUTION

1775 Massachusetts Avenue, NW • Washington D.C. 20036-2188
Tel: 202-797-6000 • Fax: 202-797-6004
www.brookings.edu



CENTER ON URBAN & METROPOLITAN POLICY

Suggestions for the Comprehensive Plan
Retail Goods and Services



1. Map-

So that we do not miss opportunities to do business in a large "marketplace" ... indicators for New Proposed Commercial/Industrial Centers should be added:

- at Highway 2 and the East and South Beltway corridors
- at O Street and the East Beltway Corridor
- at I-80 and the East Beltway Corridor

2. In the chapter on The Economy, the section on Future Locational and Land Use Considerations (page F13), add a section recognizing Retail Goods and Services as one of the "other business forces in a variety of industries that should be addressed in the long range comprehensive planning process".

-Retail markets dictate that facilities locate on traffic corridors allowing for easy recognition, access and development of customer amenities.

3. In the chapter on Business and Commerce, the section on General Principles for All Commercial & Industrial Uses (page F38), add (in the second point) "designated green space" after "native prairie" and delete the last point completely. In that same section delete the seventh point. It is too general and subject to interpretation of the word "enhance". Verbage such as this promotes conflict during the planning and development process.

Thank you for considering these changes.

Submitted by Bob Norris
1140 North 21st Street
Lincoln, NE 68503
(402)476-6563



EXHIBIT

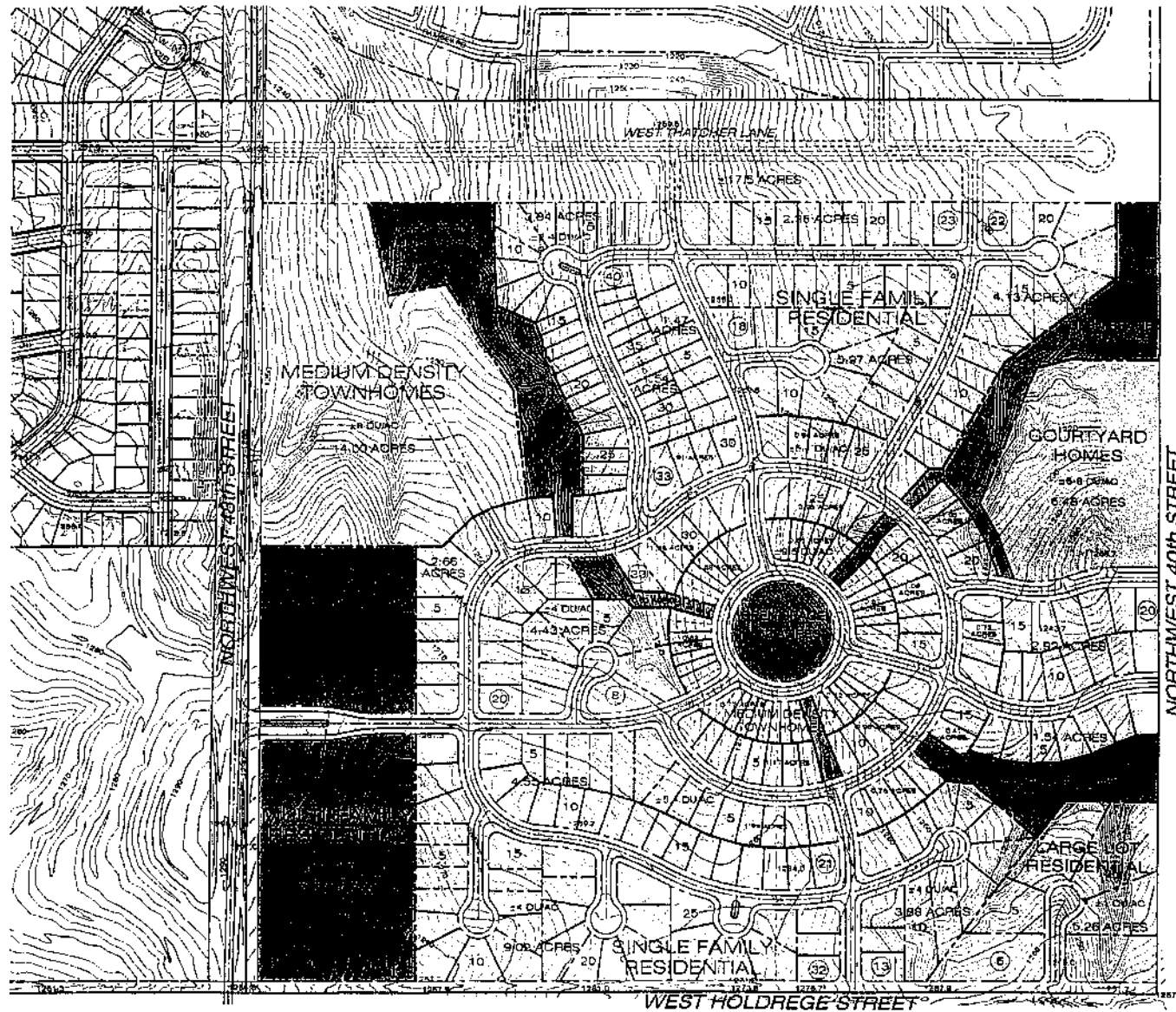
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LEGEND

- COMMERCIAL**
5.00 ACRES
- MULTI-FAMILY RESIDENTIAL**
7.55 ACRES
±120 UNITS
±16 DU/ACRE
- MEDIUM DENSITY RESIDENTIAL**
18.02 ACRES
±150 UNITS
±8 DU/ACRE
- SINGLE FAMILY RESIDENTIAL**
72.28 ACRES
±325 LOTS
±1 DU/AC - 4 DU/AC - 5 DU/AC
- OPEN SPACE**
13.27 ACRES
- R-O-W**
26.40 ACRES
- TOTAL**
142.52 ACRES



DATE: 30 NOV 2001
BY: [Signature]

07 JAN 2002

ENVIRONMENTAL DESIGN GROUP, LTD.



GATELY PROPERTY

LINCOLN, NEBRASKA

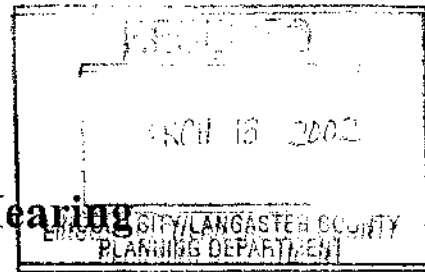
PROJECT DESCRIPTION

PRELIMINARY LAND USE MASTER PLAN

DATE: 01

LU.01

**DLA
Proposed Testimony
Comprehensive Plan Public Hearing
March 13, 2002**



Good afternoon, commission members. I am Polly McMullen and I am here today representing the Downtown Lincoln Association (DLA). I will be very brief but wanted to express DLA's support for the draft plan as it relates to downtown and Antelope Valley.

The plan's references to downtown, especially section F-49 entitled "Principals for Downtown," continue our community's long tradition of support for a strong downtown. These principals recognize downtown's transition over the past decade from a retail center to an urban mixed-use center. This section also recognizes the importance of the Antelope Valley project to the future of downtown, the university and surrounding neighborhoods.

In addition to these general comments, DLA would also like to go on the record today in support of the language change requested by Urban Development regarding the downtown theatre policy. We believe that it is extremely important that this policy, which I believe dates back to 1984, be maintained and reaffirmed in the new plan as Urban Development has requested. This policy is important because it supports the momentum which is underway in downtown today. Significant progress continues to be made on Block 41 redevelopment. Maintaining the existing theatre policy is critical to making this project happen.

Thanks for the opportunity for input today.



MOTION TO AMEND

I hereby move to amend the 2025 Lincoln City-Lancaster County Comprehensive Plan (41K) to read as follows:

Amended LINCOLN / LANCASTER COUNTY LAND USE PLAN to show "Industrial" and "Commercial" for the property located on the southwest corner of West "O" Street and NW 56th Street as shown on the attached map.

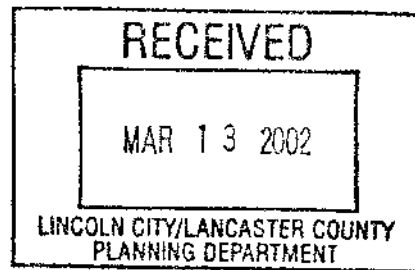
Introduced by:

Approved as to Form & Legality:

City Attorney

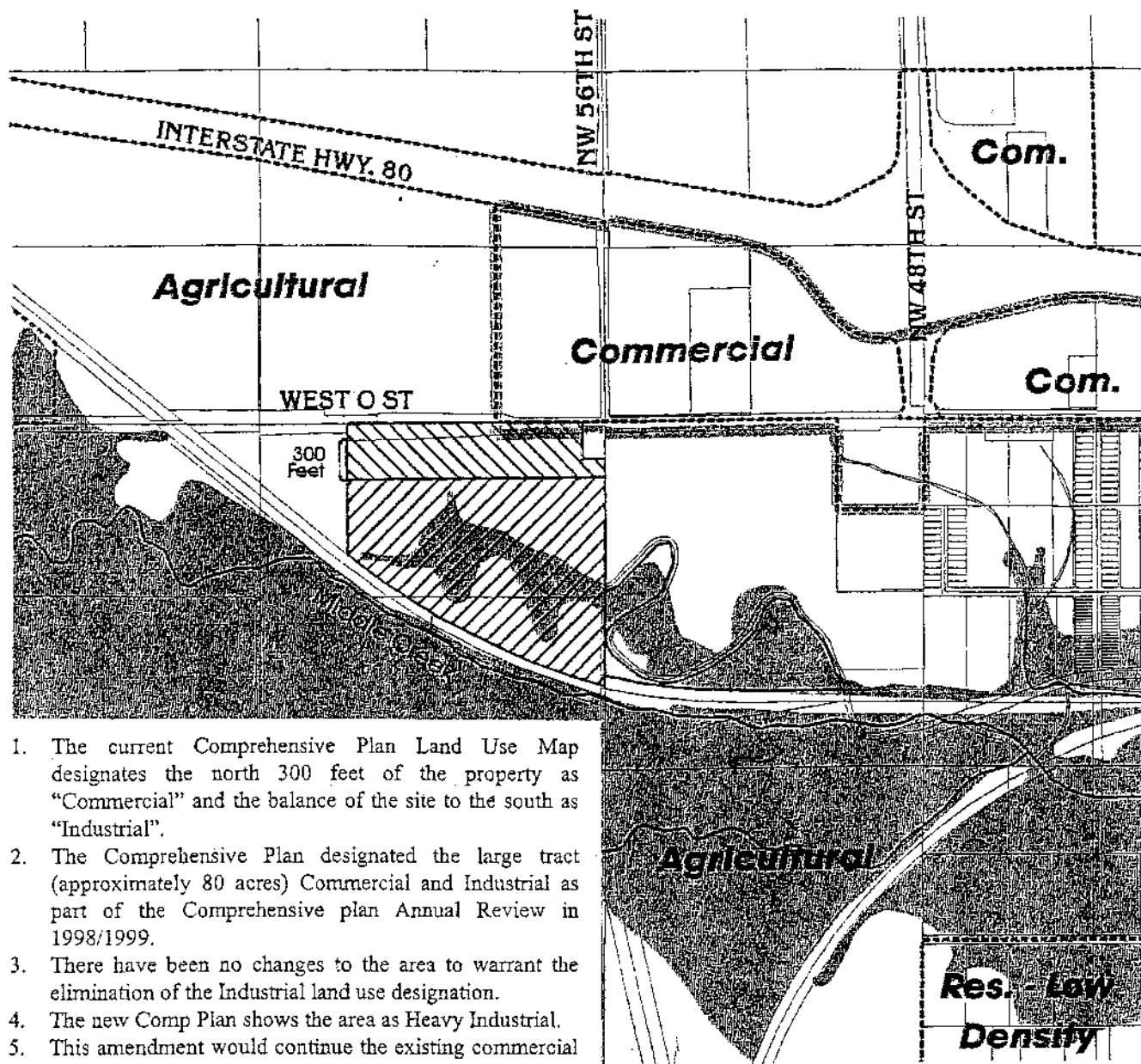
Staff Review Completed:

Administrative Assistant



Requested by: SEACREST & KALKOWSKI, P.C. on behalf of Land Construction, Inc. a Nebraska corporation, who owns the property located on the southwest corner West "O" Street and NW 56th Street.



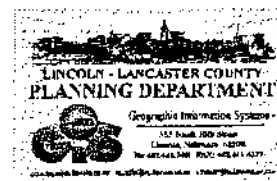


1. The current Comprehensive Plan Land Use Map designates the north 300 feet of the property as "Commercial" and the balance of the site to the south as "Industrial".
2. The Comprehensive Plan designated the large tract (approximately 80 acres) Commercial and Industrial as part of the Comprehensive plan Annual Review in 1998/1999.
3. There have been no changes to the area to warrant the elimination of the Industrial land use designation.
4. The new Comp Plan shows the area as Heavy Industrial.
5. This amendment would continue the existing commercial and industrial land uses in the current Comprehensive Plan.

(Amended) SW 56th & West O St

Comprehensive Plan Annual Review 1998/1999

- Lincoln Corporate Limit
- Land Use Boundary
- Res** Land Use Category
- From Natural/Environmentally Sensitive and Agricultural to Industrial
- From Agricultural to Commercial
- 100 Year Flood Plain & Floodway



MOTION TO AMEND

I hereby move to amend the 2025 Lincoln City-Lancaster County Comprehensive Plan (41K) to read as follows:

Amended LINCOLN / LANCASTER COUNTY LAND USE PLAN to show "Residential, Urban" and "Commercial" for the property located on the southwest corner of N. 84th Street & Adams Street as shown on the attached map.

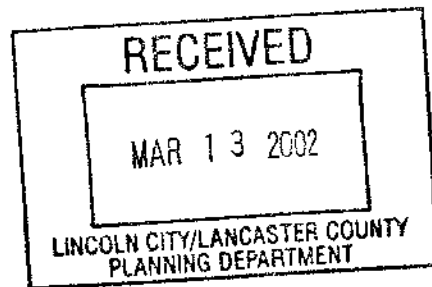
Introduced by:

Approved as to Form & Legality:

City Attorney

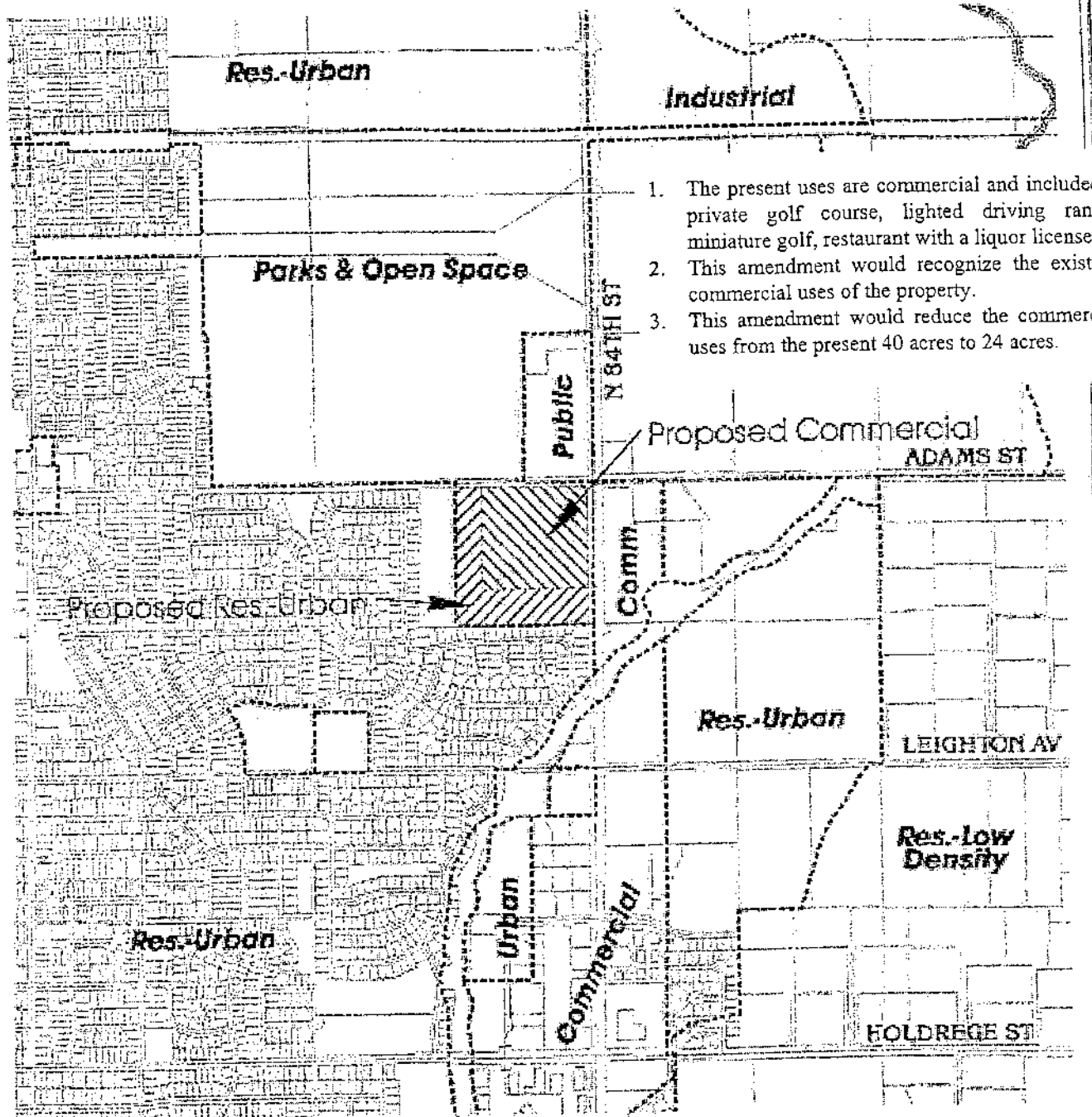
Staff Review Completed:

Administrative Assistant



Requested by: SEACREST & KALKOWSKI, P.C. on behalf of **North Forty Golf, Inc.** a Nebraska corporation, who owns the property located on the southwest corner of N. 84th Street and Adams Street, approximately 40 acres.







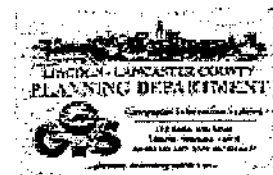
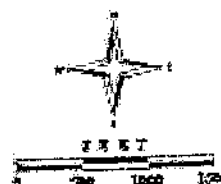


1. The present uses are commercial and included a private golf course, lighted driving range, miniature golf, restaurant with a liquor license.
2. This amendment would recognize the existing commercial uses of the property.
3. This amendment would reduce the commercial uses from the present 40 acres to 24 acres.

N. 84th & Adams St.

Comprehensive Plan Proposal # 4

-  CPC Future Service Limit
-  Land Use Boundary
- Res** Land Use Category
-  Proposed Commercial
-  Proposed Residential-Urban



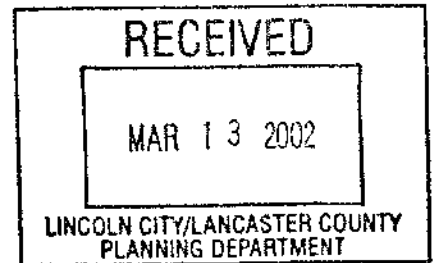
MOTION TO AMEND

Acreage Request # 1

I hereby move to amend the 2025 Lincoln City-Lancaster County Comprehensive Plan (41K) to read as follows:

GUIDING PRINCIPLES FOR RURAL AREAS

PAGE F72 (INSERT AFTER THE 5TH PARAGRAPH)



New acreage development should only be permitted in certain areas of the County and under higher design standards based upon a "build-through" model. The "build-through" design standards should address:

- a preliminary plat lot layout that accommodates first phase low density acreages and allows future lot splits as a second phase to permit the infrastructure to be built through and urbanization to occur if and when annexed by a city or town is deemed appropriate. The future lot splits will increase density in an urban form and provide income to property owners to defray the increases in city taxes, services and infrastructure costs;
- a lot layout that meets the various elements of the Comprehensive Plan; and
- a development agreement that runs with the land and acknowledges that the acreage development (i) is not entitled to extra buffering protection greater than the acreage property lines from existing agricultural practices and from future urbanization and (ii) waives any future right to protest the creation of lawful centralized sanitary sewer water and paving special assessment districts or other lawful financing methods at a later date when urbanization is appropriate.

New acreage development is not encouraged in the Future Service Limit (Tier 1, estimated 25 years) future growth areas for Lincoln, except for areas already zoned, previously designated for acreages or under development, in order to provide areas for future urban growth and to minimize the impact on new acreage development. For areas outside the Future Service Limit and within the three mile extra jurisdiction boundary, new acreage development is not encouraged, except for a limited number of areas suitable for acreage development based upon the Geographic Information Systems (GIS) data, close proximity to previously designated acreages and under "build-through" design standards. This will reduce the number of acreage homeowners who would be impacted by annexation in the future. Even though acreages can be designed with infrastructure to city standards, there is still an impact on acreage owners and their families during annexation in terms of changes in school district, the character of the surrounding



~~area and financial implications. Impacts to the acreage homeowners and the City of Lincoln can be avoided by locating acreages in areas outside of future urban growth areas.~~

Note: Amend Acreage Development Policy Map on Page F73 to reflect the above text.

Acreage Request # 2

I hereby move to amend the 2025 Lincoln City-Lancaster County Comprehensive Plan (41K) to read as follows:

Amended LINCOLN / LANCASTER COUNTY LAND USE PLAN to show "Residential, Low Density" for the property between S. 112th - 120th , south of Old Cheney Road as shown on the attached map.

Introduced by:

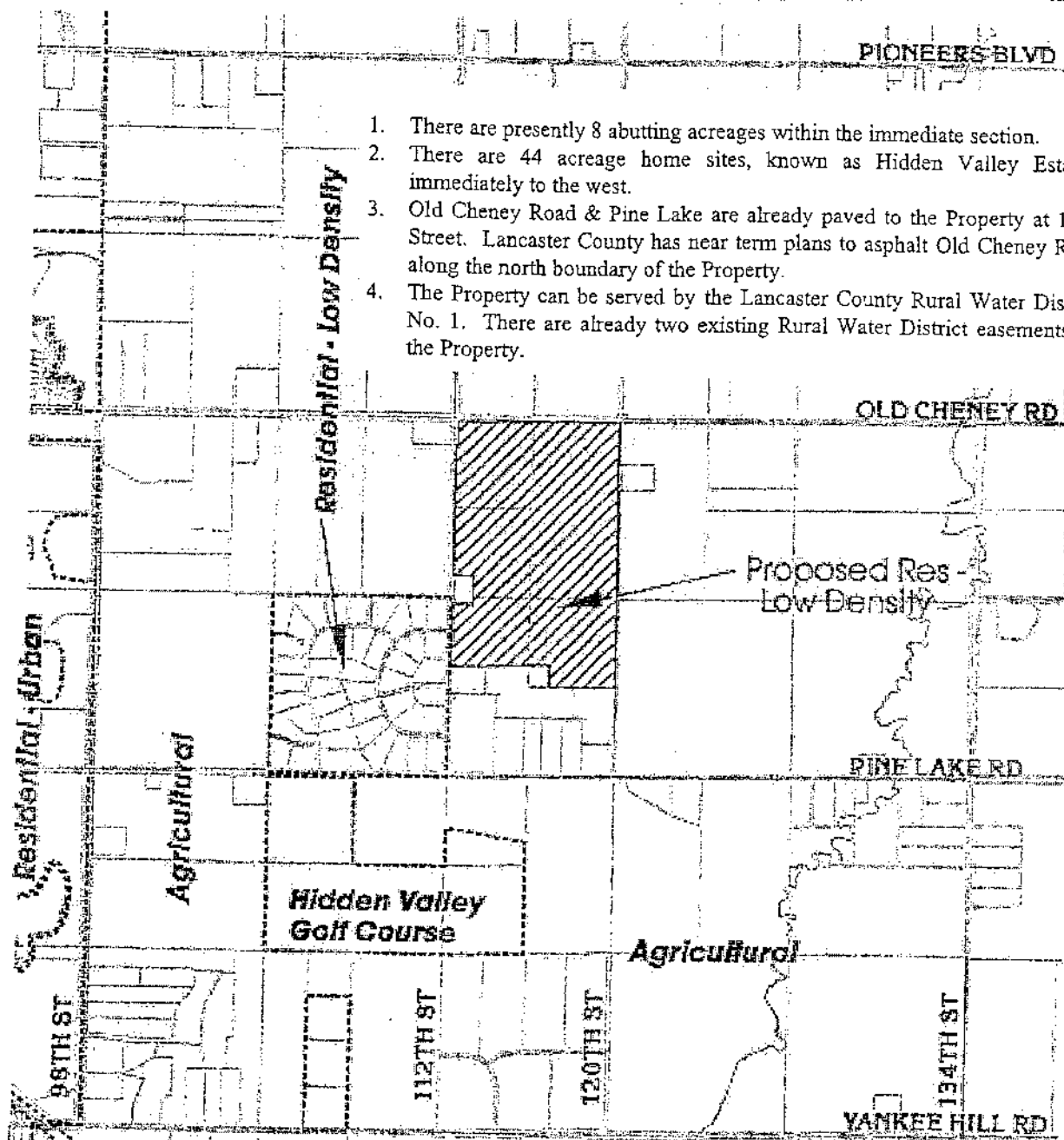
Approved as to Form & Legality:

City Attorney

Staff Review Completed:

Administrative Assistant

Requested by: SEACREST & KALKOWSKI, P.C. on behalf of **Winona Ketelhut, Connie Heier and Patricia Slaughter**, who own property in the Stevens Creek basin (Lots 14, 16, 18, 19 and the Parcel indicating 27.25 acres in Section 18, Township 9N, Range 8E) between 112th and 120th Streets and between Old Cheney Road and Pine Lake Road, approximately 215 acres.



1. There are presently 8 abutting acreages within the immediate section.
2. There are 44 acreage home sites, known as Hidden Valley Estates, immediately to the west.
3. Old Cheney Road & Pine Lake are already paved to the Property at 112th Street. Lancaster County has near term plans to asphalt Old Cheney Road along the north boundary of the Property.
4. The Property can be served by the Lancaster County Rural Water District No. 1. There are already two existing Rural Water District easements on the Property.

112th & Old Cheney Rd

Comprehensive Plan Proposal # 8

- CPC Future Service Limit
- Land Use Boundary
- Res** Land Use Category
- From Agricultural to Res - Low Density



1 INCH = 200 FEET

Scale: 1 inch = 200 feet



Could Lincoln find some other uses for the \$45 million that would be spent on a new crossing of Wilderness Park? If we had \$45 million in hand, we could:

➤ *Pay 90% of the city's share for the South and East Beltways*

or

➤ *Pay nearly 1/2 of the city's cost for the Antelope Valley project*

or

➤ *Do all of the following:*

- Build a new sewage treatment plant to serve 100,000 people	\$18,000,000
- Build a new elementary school	6,000,000
- Build, equip, furnish and fill the shelves of a new library	7,600,000
- Build & equip two new fire stations	2,888,000
- Build a street & traffic operations maintenance facility--SE Lincoln	1,600,000
- Purchase 10 full-size buses	1,040,000
- Build 5 new parks (includes design & construction of the 196 acre Jensen Regional Park and 4 new neighborhood parks)	4,640,000
- Build the Homestead Trail, Lincoln-Gage County line	358,000
- Purchase and plant 15,000 1 to 1 1/2 inch caliper park and street trees	<u>2,475,000</u>
Total Cost	\$44,601,000

The total cost would be \$44,601,000. With the \$399,000 left over, plus the \$500,000 that would have been spent on another Wilderness Park bridge study, we could buy two new pumper trucks and a new aerial (ladder) truck for one of the new fire stations.

What would be the best choice for the citizens of Lincoln and Lancaster County--the things listed above or a new road crossing of Wilderness Park? Please think about it and make the decision that is best for Wilderness Park and the majority of our citizens. Thank you.

Phyllis Hergenrader

3-13-02



March 13, 2002

Chairman Schwinn and members of the Planning Commission:

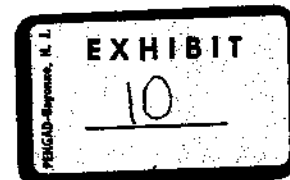
I am here today to urge you to remove the Yankee Hill Road overpass study from the new Comprehensive Plan.

Previous studies have shown that a bridge crossing of Wilderness Park would not relieve north-south traffic congestion on streets north of Hwy. 2. LSA consultants who did the latest study said that their evaluation took into account the projected growth in SW Lincoln west of Hwy. 77 and showed that a new crossing of the park was not necessary for adequate east-west access. However, it appears that it really does not matter what any of the studies showed. Public Works Director, Allan Abbott, said previous studies were inconclusive because models sophisticated enough to show the real story do not exist. If it was known the modeling programs were flawed and not sophisticated enough to give reliable projections, why was money wasted on the previous studies and why are those same inadequate models being used to justify all of the other street and road improvements in the Comprehensive Plan? Or is it not known whether or not models are adequate until study results are seen? If data eventually supports a new road crossing of Wilderness Park, will the computer models be judged as sophisticated enough?? -- Just asking!

Could Lincoln find some other uses for the \$45 million that would be spent on a new crossing of Wilderness Park? If we had \$45 million in hand, we could pay 90% of the city's share for the South and East Beltways or we could pay nearly one-half of the city's cost for the Antelope Valley project. Or, since projected expenditures in the Long Range Transportation Plan already exceed projected revenues by at least \$346 million, alternative funding sources would have to be used to finance the very expensive bridge project if it were built—with \$45 million from alternative funding sources we could do all of the following:

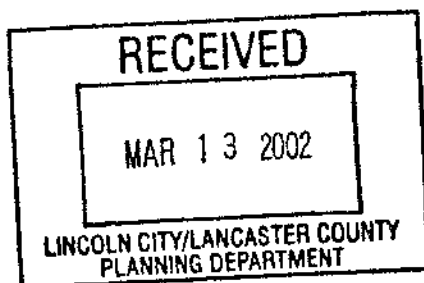
• <i>Build a new sewage treatment plant to serve 100,000 people</i>	<i>\$18,000,000</i>
• <i>Build a new elementary school</i>	<i>6,000,000</i>
• <i>Build, equip, furnish and fill the shelves of a new library</i>	<i>7,600,000</i>
• <i>Build & equip two new fire stations</i>	<i>2,888,000</i>
• <i>Build a street & traffic operations maintenance facility—SE Lincoln</i>	<i>1,600,000</i>
• <i>Purchase 10 full-size buses</i>	<i>1,040,000</i>
• <i>Build 5 new parks (includes design & construction of the 196 acre Jensen Regional Park and 4 new neighborhood parks)</i>	<i>4,640,000</i>
• <i>Build the Homestead Trail, Lincoln-Gage County line</i>	<i>358,000</i>
• <i>Purchase and plant 15,000 1 to 1 ½ inch caliper park and street trees</i>	<i>2,475,000</i>
	<i>\$44,601,000</i>

The total cost would be \$44,601,000. With the \$399,000 left over, plus the \$500,000 that would have been spent on another study, we could buy two new pumper trucks and a new aerial (ladder) truck for one of the new fire stations.



What would be the best choice for the citizens of Lancaster County —things just mentioned or a new road crossing of Wilderness Park? Each of us can and should hold ourselves accountable for the consequences of the decisions we make. Why can't we let Wilderness Park be a testament to our foresight and make plans to protect it instead of putting in the Comp Plan another study for a road/bridge that would cost greater than \$45 million and would damage an important part of the park? I respectfully urge you to delete the Yankee Hill Road Overpass of Wilderness Park from the proposed studies paragraph on page F 110. Thank you.

Phyllis Hergenrader



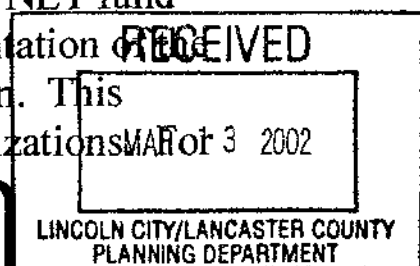
My Name is Doug Nagel I'm a resident, farmer and taxpayer in Lancaster co. I oppose the acreage limitations of 8 houses per section and I oppose the use of the Salt Creek Tiger beetle and the green print challenge as part of your plan. To me this is a zoning regulation which imposes inverse condemnation on its rural citizens.

Clarification of the Federal Government and the Endangered Species Act (ESA) is needed. You all know that we are paying a huge price by stopping progress at 27th & I-80 due to 375 beetles. (See attached UNL beetle counts by location North to South). We have looked into the ESA and we find quite a number of inconsistencies into the listing process.

(See the attached letter)

- 1) We have found out that one of the reasons for the candidate species listing of 3 is partly because of a new interchange planned at 27th & I-80. To the best of my knowledge we have had an interchange there for 8 years, with no plans for a new one.
- 2) The bug now has this high listing, we find within that 3 we have a sub-category rank of 2. This means that the government is saying no persuasive data and biological vulnerability exist and the threats are not currently available. This is where we get the "we need more studies" mentality.
- 3) Advocates for saving the beetle really feel we must save the Saline Wetland Complex, or rather critical habitat. Only the Federal government can do this, and when they do they must consider the economic impact on the area.

For the past year there has been a push by environmental groups to form the Little Salt Valley Planning Cooperative (LSVPC). Problems constantly arose when the truth about their intentions did not come from them but rather county commissioners, open environmental forums and NET fund proceedings. Now we have a 14-page implementation of the Green Print Challenge (GC) into your 25-yr. plan. This sophomoric report shows way too many generalizations



instance, look at the map outlining the saline wetlands on little salt creek. (Page 18 of GC) It gives a perception that the N27th area is nothing but swamps when actually these are very small isolated wetlands. Another problem is areas designated as native prairie. (Page 15 of GC). Included here are farms that we know were cropped not so long ago. One farm is brome grass CRP the other is land converted back to pasture after it was farmed. Take a look green print challenge cabinet and consider why such errors were made. Three members are from the game and parks, with vested interest in the area. Six members are UNL professors, some with heavy environmental convictions. On Nov 19, 2001 Letter to the Editor a green print cabinet member wrote that there is a need for a population cap in Lancaster County. (See attachment) This shows that there is a no-growth, no-development, no commuting, and I say no chemicals (farming?) opinions are at work here. Based on this I recommend that we remove the green print challenge comments from this plan and amend the acreages back to 1 house for every 20 acres zoning. The need to broaden our tax bases, and economically enhance the north side of Lancaster County from the west to the east is there.

[illegible]

February 15, 2002

Salt Creek Tiger Beetle Comments
U.S. Fish & Wildlife Service
Grand Island Office
203 West 2nd Street
Grand Island, Nebraska 68801
Ph: 308-382-6468

Subject: Comments on Proposed Listing of Salt Creek Tiger Beetle (*Cicindela nevadica lincolniana*) as a Threatened or Endangered Species

To Whom it May Concern:

In response to the U.S. Fish and Wildlife Service listing the Salt Creek Tiger Beetle (SCTB) as a Candidate Species under the Endangered Species Act (ESA), the North Lancaster Citizens Coalition for Common Sense Development submits the following comments.

I. Background

The North Lancaster Citizens Coalition for Common Sense Development (NLCCFCSD) is a group of citizens organized with common concerns regarding the business, residential, and economic growth of Lancaster County, Nebraska and of the City of Lincoln, Nebraska. In part, the concerns of the NLCCFCSD are based on the belief that the scientific research thus far completed was not done objectively, was in part based on biased information, and was unduly influenced by local individuals and leaders

in the community who have a desire to halt urban and business development in the area. The scientific data thus far collected is substantially incorrect and incomplete; and accordingly its accuracy cannot be substantiated.

II. The SCTB is already sufficiently protected under the Nebraska ESA, where it is listed as an Endangered Species.

The SCTB was listed as endangered under the Nebraska ESA pursuant to NEB. REV. STAT. § 37-806 (Reissue 1998). See Nebraska Administrative Code, 163-004.01 (Oct. 9, 1998). The Nebraska ESA basically mimics the Federal ESA, so listing under the federal ESA would not give the SCTB much additional protection beyond what it already has. Moreover, the Federal ESA provides for critical habitat to be designated, under which there also needs to be an economic analysis. Economic analysis likely will result in favor of the City of Lincoln and its development and against the designation of critical habitat; thus listing the SCTB under the Federal ESA is an unnecessary exploitation of time, energy, and funds of USFWS.

III. If protection of the SCTB was direly necessary, it would have a Category Status of 1. Rather, the species has been assigned a Category Status of 2.

The SCTB has a Category Status of 2. 59 Fed. Reg. 58982, 58984 (Nov. 15, 1994). While the Category Status 2 was extinguished in 1995 by UWFWS, species already assigned a Category Status of 2 were allowed to continue with such a designation.

Category Status of a species is reviewed annually. Accordingly, USFWS has had ample opportunity to amend its Category Status, but has chosen that such a change is not warranted.

Having a Category Status of 2 means that the SCTB is a taxa for which information now in the possession of the Service indicates that proposing to list as endangered or threatened is possibly appropriate, but for which persuasive data on biological vulnerability and threat are not currently available to support proposed rules. The FWS Service emphasizes that these taxa are not being proposed for listing by this notice, and there are no current plans for such proposals until additional supporting information becomes available. 59 Fed. Reg. 58982, 58984 (Nov. 15, 1994).

A Category Status of 1 is given to taxa for which the Service has on file sufficient information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened species. In accordance with the policy announced in a statement published May 12, 1993(58 Fed. Reg. 28034-28035), all species that have been the subject of a petition determination of "warranted but precluded" for listing are automatically assigned to Category 1 of the next comprehensive notice of review unless they are proposed or determined to be "not warranted" in the interim. 59 Fed. Reg. 58982, 58984 (Nov. 15, 1994).

If extending protection to the SCTB pursuant to the ESA were necessary, the SCTB would have a Category Status of 1. Instead, it has a Category Status of 2, well demonstrating that protection beyond what it already has under the Nebraska ESA is not needed.

IV. Priority Level of 3 is Unnecessary and Unwarranted.

The new interchange, which partially is claimed to be a contributing factor from the upgrade of 6 to 3, is not planned for the area. The absence of this development

greatly alters the results of any analysis done in changing the priority level of the SCTB from a 6 to a 3. Accordingly, this NLCCFCSD request that another review be completed to analyze the appropriateness of assigning the SCTB a Priority Level of 3. Such review is requested to be completed before any further discussion of listing the SCTB under the ESA is had.

Moreover, USFWS provides support for the upgrade from 6 to 3 based upon the unwarranted fear that the U.S. Army Corps of Engineers' reduced jurisdiction over isolated wetlands may hamper the State's ability to protect the wetland habitats essential to the beetle's survival since the NDEQ will not have a nexus to implement review under the State section 401 water quality certification program. It is improper for USFWS to rely on this argument for support upgrading the Priority Level of the SCTB since it only may hamper the State's ability. Tentative and unascertained plans in development are only that, and any possibility of harm should not be considered in the upgrade of priority level unless and until such plans can be substantiated.

V. Sufficient Persuasive Data on Biological Vulnerability and Threat is Not Available to USFWS, and thus listing the species is improper at this Time.

The SCTB has a Category Status of 2. Species included in this Category Status are species for which persuasive data on biological vulnerability and threat are not currently available. The FWS Service has emphasized that these species are not being proposed for listing, and there are no current plans for such proposals until additional supporting information becomes available. 59 Fed. Reg. 58982, 58984 (Nov. 15, 1994).

Section 4(b)(1)(A) (2001) of the ESA states that, when determining a species to be listed as threatened or endangered, the Secretary must rely solely on "the best

scientific and commercial data available to him after conducting a review of the status of the species . . .” 16 U.S.C. § 1533 (2001). Members from the scientific community in Lancaster County “noted that there is very little long term information available on Tiger Beetle biology, critical habitat requirements, or the effects of human impacts on the hydrology/hydrogeology of the watershed.” Dec 13, 2001 SCTB Cabinet Report Update – Final Draft of Preliminary Findings, Lighthouse Consulting. Accordingly, the NLCCFCSD requests that the best biological data on vulnerability of and threat to the SCTB is completed and allowed for review by the public. Until such data is available, listing the SCTB as either threatened or endangered is improper.

VI. Lack of Consideration of Alternative Habitat Management and Conservation Efforts

The only consideration that has been proposed to reduce the alleged effects on the SCTB has been to impose a 500 yard buffer zone, effectively prohibiting all development in the locale.

Moreover, no alternative habitat management or conservation efforts have been proposed or even discussed by USFWS. Until alternatives to conserving the SCTB are formally considered and discussed, the imposition on the citizens of Lancaster County, Nebraska that results from listing the SCTB is inappropriate.

VII. Lack of Appropriate Evaluation of Social Impacts

A. Need for Economic and Urban Development.

Listing the species constitutes a significant threat to the present and future economic well-being of the City of Lincoln, Nebraska, Lancaster County, and to its surrounding

rural communities. The burden of impeding the economic development of Lancaster County, Nebraska is great, and the impact substantial.

Many proponents of the listing would have USFWS believe that their intent in preserving the SCTB is sincere. One cannot halt urban development, however, or at least the desire of urban development and growth of an urban community. It is inevitable, as those living and purchasing land in the area should have expected, that the city would come to them. From the standpoint of these proponents, the power to protect populations is the power to drastically block economic development. The ESA is being abused. It is being used as a device to halt urban growth, rather than being used for its primary purpose of protecting a species and its habitat.

Concerns abound, and to date have not been resolved, regarding property right infringement, decreasing property values, right to sell, and the impacts of a designated habitat on the practices of neighboring property owners. Dec 13, 2001 SCTB Cabinet Report Update – Final Draft of Preliminary Findings, submitted by Lighthouse Consulting.

B. Need for Preservation of use of Farmland.

The State of Nebraska prides itself, and indeed finances itself to a great extent on the products of rural communities – farming and ranching. Much of the land in the area at hand is used for farming and ranching purposes, and likely will continue to be used as such if and until it is developed for urban use. By listing the SCTB and thus triggering Section 7 consultation requirements¹ and the imposition of critical habitat, USFWS

¹ Section 7 of the Endangered Species Act provides that each Federal agency “shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency (hereinafter in this section referred to as an “agency action”) is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse

would be effectively preventing further technological developments in the farming and ranching arena. Progress in agricultural would be hampered by listing the SCTB.

VIII. USFWS should focus their efforts on those species that are already proposed for listing, rather than concerning themselves about proposing yet additional new species to be listed.

There are many species whose existence is more at risk than the SCTB, and accordingly those species should be examined before any further analysis is done of the SCTB. The list of species proposed to be listed, and listed species for which critical habitat must still be designated, is so substantial that both President Clinton and President George H. Bush approved moratoriums on listing additional species. The most recent moratorium was lifted just recently in 2001.

In addition to noting these concerns, we would also request that the North Lancaster Citizens for Common Sense Development through this office be placed on all mailing lists and notified of any developments by the Service on this very critical issue affecting the future of the area.

Sincerely,

Stephen D. Mossman
for NLCCFCSD

Enclosure

modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected States, to be critical, unless such agency has been granted an exemption for such action by the Committee pursuant to subsection (h) of this section." 16 U.S.C. § 1536 (2001).

For an emergency regulation, the Secretary must public in the Federal Register “detailed reasons why such regulation is necessary.” 16 U.S.C. § 1533(b)(7)(A). The Secretary at this time is absolutely and completely unable to provide detailed reasons why listing of the SCTB is necessary.

the developer proposes in his concept of a linear park. A 10-or 20-foot buffer strip along Little Salt Creek will not serve the purpose. The tiger beetle's habitat of saline wetlands is an intricate and complicated arrangement of the watershed, hydrology and soils. A token amount of habitat will not solve the problem.

I find it interesting that conservationists are continually challenged to propose and defend the minimum area that will allow the beetle or other species to survive. I think the far more interesting challenge would be to determine the minimum area that the developers need for housing, business and industrial development. This minimum area would be further restricted by limiting the population of Lancaster County to 300,000 people. This type of model would provide a high quality of life by maintaining natural areas, the rural environment, trails and linear parks. If 300,000 people were deemed an undemocratic ceiling, then the developers would be further challenged to provide high-density housing so that the amenities that Lincolmites value so highly can be protected.

Ronald M. Case, Lincoln

Population cap

The editorial in the Journal Star (Nov. 14) on the Salt Creek tiger beetle and the article by David Stoeffler on the Amazon rainforest (LJS, Nov. 15) present an interesting parallel. In the rainforest article, Stoeffler described an experiment to determine a block of forest that would maintain species diversity. Even a large block suffered from edge effects and microclimate differences well into the interior of the forest. This is a lesson that we need to heed locally.

A local developer and the city face the problem of dealing with the tiger beetle. The mayor is trying to develop a plan to prevent the tiger beetle from being listed as an endangered species.

The city lacked the foresight not only to adequately protect the tiger beetle but to provide a natural and historic entrance to Lincoln at the 27th Street and I-80 interchange. Would it not have been great to have a visitors' center explaining not only the uniqueness of the plants and animals in the saline wetlands, but to also explain the role that these salt marshes had in the settling of Lincoln? Would it not have been refreshing to enter Lincoln and see the expanse of a saline wetland in Southeastern Nebraska? Instead the developers prevailed and we have a rather pedestrian (others may call it ugly) entrance to the city with car dealerships, restaurants, motels, gas stations and other examples of the "built" environment.

It will be interesting to see how this dilemma of development and maintaining a rare species plays out. I do not know what